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**From:** Pierce - CDPHE, Gordon [gordon.pierce@state.co.us]  
**Sent:** 4/7/2016 5:06:46 PM  
**To:** Payton, Richard [Payton.Richard@epa.gov]  
**CC:** gregory.harshfield@state.co.us; Landes - CDPHE, Scott [scott.landes@state.co.us]  
**Subject:** Re: Lightning Induce ozone and Mines Peak

Richard,

Here is one option that Scott came up with that might be useful.

Gordon

On Wed, Apr 6, 2016 at 11:31 AM, Landes - CDPHE, Scott <scott.landes@state.co.us> wrote:

Much of the lightning data on the web is through commercial services (not free). However, I was able to find this archive that may be helpful. In order to access a specific month, you must make the appropriate change in the URL. If you attempt to use the drop-down menu on the webpage, it will ask you for a username and password.

[http://lightning.nsstdc.nasa.gov/cgi-bin/nldn/nldn\\_cal.pl?2015+April](http://lightning.nsstdc.nasa.gov/cgi-bin/nldn/nldn_cal.pl?2015+April)

On Wed, Apr 6, 2016 at 10:31 AM, Pierce - CDPHE, Gordon <gordon.pierce@state.co.us> wrote:  
Scott,

Do you know or have access to any lightning detection data/maps?

----- Forwarded message -----

**From:** Payton, Richard <Payton.Richard@epa.gov>  
**Date:** Wed, Apr 6, 2016 at 8:19 AM  
**Subject:** Lightning Induce ozone and Mines Peak  
**To:** Gordon Pierce <Gordon.Pierce@dphe.state.co.us>, "gregory.harshfield@state.co.us" <gregory.harshfield@state.co.us>

Gentlemen:

Atmospheric science textbook statements attribute some contribution to background ozone as coming from lightning. My grad school based perception is that lightning induced NO<sub>x</sub> is the primary path for this background source; this is reflected in our background ozone white paper (<https://www.epa.gov/sites/production/files/2016-03/documents/whitepaper-bgo3-final.pdf>): "Other natural sources of O<sub>3</sub> precursor emissions include wildfires, lightning, and vegetation."

On the other hand, it is being suggested that thunderstorms/lightning should be a new class of ozone exceptional events. I have to admit, I did smell ozone during the thundersnow in Denver last week (or the week before?). The odor threshold for ozone is variously given as 8 to 30 ppb (or higher), so that would imply we should be able to see at least short term ozone enhancement during thunderstorms on monitors.

I am thinking that looking at high resolution ozone data from Mines Peak would be a good way to look for lightning induced ozone magnitude and duration. Doing that would depend on identifying thunderstorms in the area, or, better, lightning strikes on the peak. I don't know if any of your neighbors on the peak are running lightning sensors, or if I can find access to regional lightning strike maps, but I thought I would float the idea with you and ask if you know of lightning strike data that would make this search practical.

Let me know if you know of an appropriate data source.

Richard

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**Scott J Landes**  
**Air Quality Meteorologist**  
**Modeling, Meteorology and Emissions Inventory Unit**  
**Technical Services Program**

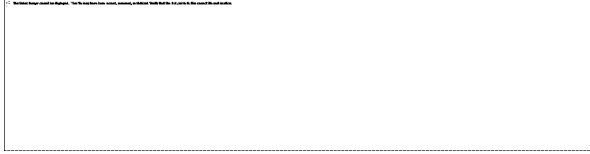


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